

## REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Formalities

The specification has been revised to correct various formal errors, including the ones noted in item 1 on page 2 of the Official Action. Because the changes are all formal in nature, it is respectfully submitted that the changes do not involve new matter.

2. Rejection of Claims 1, 2, and 4-6 Under 35 USC §102(b) in view of U.S. Patent No. 4,728,833 (Shiraki)

This rejection is respectfully traversed on the grounds that the Shiraki patent fails to disclose or suggest a motor in which the base or casing of the motor includes a positioning "member" arranged to attract whichever of the strong magnetic areas of the rotor is closest. Instead, each of elements 31-1 and 31-2 of Shiraki, which the Examiner interprets as corresponding to the claimed "positioning member," are:

- I. permanent magnets, and therefore can only attract one of the poles of the rotor while repelling the other, as opposed to simply attracting whichever of the poles is closest; and
- II. not "members" mounted to a base, but rather are "magnetized portions" of the plastic magnet 18" (Figs. 4 and 6 of Shiraishi), or "magnetized portions 31'-1, 31'-2 each magnetized with an N pole directly upwardly" of a printed circuit board (Fig. 9).

Essentially, the invention simply involves mounting a piece of metal or other ferromagnetic material so that it will attract either of the permanent magnets of the rotor when the motor is stopped, and thereby position the rotor for re-starting. In contrast, Shiraki the permanent magnets of Shiraki are designed to generate an attracting *and* repulsing torque to position the rotor for re-starting. As a result, Shiraki requires a relatively complex and costly,

Serial Number 09/964,640

alternately magnetized plastic magnet, in which each of the permanent magnets is arranged to repel one of the poles and attract the other.

Because Shiraki does not disclose or suggest the claimed structure, which simply involves placing a magnetically attractive member on the base or casing of a motor, but to the contrary requires a pair of permanent magnet portions of a disk or circuit board, withdrawal of the rejection of claims 1, 2, and 4-6, withdrawal of the rejection under 35 USC §102(b) is respectfully requested.

3. Rejection of Claim 3 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,728,833 (Shiraki) and 6,353,275 (Nishiyama)

This rejection is respectfully traversed on the grounds that the Nishiyama patent, like the Shiraki patent, fails to disclose or suggest a motor in which the base of the motor includes a discrete positioning member arranged to attract whichever of the strong magnetic areas of the rotor is closest. In fact, Nishiyama fails to disclose any sort of positioning member, whether in the form of a permanent magnet or not, the only magnetic members disclosed in Nishiyama being the rotor magnets. Accordingly, withdrawal of the rejection of claim 3 under 35 USC §103(a) is respectfully requested.

4. Rejection of Claims 7 and 9-11 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,728,833 (Shiraki) and 6,342,742 (Kim)

This rejection is respectfully traversed on the grounds that the Kim patent, like the Shiraki and Nishiyama patents, fails to disclose or suggest a motor in which the base of the motor includes a discrete positioning member arranged to attract whichever of the strong magnetic areas of the rotor is closest. Instead, element 39 of Kim, described in col. 8, line 6 as a "magnetic member. . .[for] causing the rotary member 10 being rotated by the external power supply [to be] stopped at a fixed location," is mounted on either the upper or lower stator bobbin, and the rotor is a unipolar magnet structure. Accordingly, withdrawal of the rejection of claims 7 and 9-11 under 35 USC §103(a) is respectfully requested.

Serial Number 09/964,640

5. Rejection of Claim 8 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,728,833 (Shiraki), 6,342,742 (Kim), and

This rejection is respectfully traversed on the grounds that the Bruno patent, like the Shiraki and Kim patents, fails to disclose or suggest a motor in which the base of the motor includes a discrete positioning member arranged to attract whichever of the strong magnetic areas of the rotor is closest. Instead, like the Nishiyama patent discussed above, the Kim patent does not disclose any sort of magnetic positioning member. Accordingly, withdrawal of the rejection of claim 8 under 35 USC §103(a) is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC



By: BENJAMIN E. URCIA  
Registration No. 33,805

Date: April 16, 2003

BACON & THOMAS, PLLC  
625 Slaters Lane, 4th Floor  
Alexandria, Virginia 22314

Telephone: (703) 683-0500

NWB:s:\Produce\ben\Pending A - HUBHORN\964640\01.rpt

**APPENDIX A**  
**(Clean Copy Of Amended and New Claims)**

1. (Amended) An easy-to-start structure for a D.C. brushless motor, comprising:

a base comprising a through-hole having an end, a support section being provided in the end of the through-hole, plural windings and an IC control means being mounted to the base, at least one positioning member being mounted to the base and located between said plural windings; and

a rotor comprising a shaft and a permanent ring magnet having a north pole and a south pole, each of the south pole and the north pole having a strong magnetic area, said positioning member being arranged to be aligned with whichever of the strong magnetic areas is closest to the positioning member when the rotor stops, and the shaft being rotatably held by the support section;

said at least one positioning member being made of a material capable of attracting said whichever of the strong magnetic areas is closest and thus retaining one of the strong magnetic areas of the permanent ring magnet in a predetermined angular position proximal to said at least one positioning member when the rotor stops.

7. (Amended) An easy-to-start structure for a D.C. brushless motor, comprising:

a base comprising a through-hole having an end, a support section being provided in the end of the through-hole, plural windings and an IC control means being mounted to the base;

a rotor comprising a shaft and a permanent ring magnet having a north pole and a south pole, each of the south pole and the north pole having a strong magnetic area, the shaft being rotatably held by the support section; and

a casing mounted around the base, the casing comprising at least one positioning member provided thereon, said at least one positioning member being located between said plural windings, said positioning member being arranged to be aligned with whichever of the strong magnetic areas is closest to the positioning member when the rotor stops;

said at least one positioning member being made of a material capable of attracting and thus retaining said whichever of the strong magnetic areas is closest and thus retaining one of the

Serial Number **09/964,640**

strong magnetic areas of the permanent ring magnet in a predetermined angular position proximal to said at least one positioning member when the rotor stops.

**APPENDIX B**  
**(Marked-Up Copy Of Amended Claims)**

1. (Amended) An easy-to-start structure for a D.C. brushless motor, comprising:

a base comprising a through-hole having an end, a support section being provided in the end of the through-hole, plural windings and an IC control means being mounted to the base, at least one positioning member being mounted to the base and located between said plural windings; and

a rotor comprising a shaft and a permanent ring magnet having a north pole and a south pole, each of the south pole and the north pole having a strong magnetic area, said positioning member being arranged to be aligned with whichever of the strong magnetic areas is closest to the positioning member when the rotor stops, and the shaft being rotatably held by the support section;

said at least one positioning member being made of a material capable of attracting said whichever of the strong magnetic areas is closest and thus retaining one of the strong magnetic areas of the permanent ring magnet in a predetermined angular position proximal to said at least one positioning member when the rotor stops.

7. (Amended) An easy-to-start structure for a D.C. brushless motor, comprising:

a base comprising a through-hole having an end, a support section being provided in the end of the through-hole, plural windings and an IC control means being mounted to the base[.];

a rotor comprising a shaft and a permanent ring magnet having a north pole and a south pole, each of the south pole and the north pole having a strong magnetic area, the shaft being rotatably held by the support section; and

a casing mounted around the base, the casing comprising at least one positioning member [provide] provided thereon, said at least one positioning member being located between said plural windings, said positioning member being arranged to be aligned with whichever of the strong magnetic areas is closest to the positioning member when the rotor stops;

said at least one positioning member being made of a material capable of attracting and thus retaining said whichever of the strong magnetic areas is closest and thus retaining one of the

Serial Number 09/964,640

strong magnetic areas of the permanent ring magnet in a predetermined angular position proximal to said at least one positioning member when the rotor stops.

13. (New) An easy-to-start structure for a D.C. brushless motor, comprising:

a base including plural windings, an IC control means being mounted to the base, and at least one thin positioning member located between any two of said plural windings;

a rotor including a shaft and a permanent ring magnet having a north pole and a south pole, each of the south pole and the north pole having a relatively strong magnetic area aligned with said positioning member, said positioning member being arranged to be aligned with whichever of the strong magnetic areas is closest to the positioning member when the rotor stops;

said at least one positioning member being made of a material capable of attracting and thus retaining one of the relatively strong magnetic areas of the permanent ring magnet at a precise angular position proximal to said at least one positioning member when the rotor stops.

14. (New) The easy-to-start structure for a DC brushless motor as claimed in claim 13, wherein the relatively strong magnetic area is radially aligned with said positioning member.

**APPENDIX C**  
**(Clean Copy Of Amended Paragraphs)**

Page 1, lines 15-21:

Fig. 10 of the drawings illustrates another conventional stator structure of a D.C. brushless motor structure disclosed in Taiwan Utility Model Application No. 81217854 published on Nov. 1, 1993 and entitled IMPROVED STATOR YOKE FOR A STATOR OF A HEAT-DISSIPATING FAN MOTOR. Each of an upper stator yoke 8 and a lower stator yoke 8 comprises plural poles 81 on a peripheral edge thereof, each pole 81 having a notched portion 82 in a side thereof.

Page 1, lines 22-25:

The notched portions 92 and 82 in these conventional D.C. brushless motor structures are designed to create an uneven magnetic force associated with the permanent magnet, thereby preventing the rotor from stopping in a dead corner for starting and thereby allowing the rotor to be restarted.

Page 2, lines 2-4:

An object of the present invention is to provide an easy-to-start structure of a D.C. brushless motor that prevents the rotor of the motor from stopping in a dead corner for starting and that allows the rotor to be restarted easily.

Page 4, line 20 to Page 5, line 9:

As illustrated in Fig. 2, the base 1 has even-numbered windings 13 mounted to the outer wall thereof. The rotor 2 is received in the through-hole 11 of the base 1. Two ends of the shaft 21 of the rotor 2 are respectively, rotatably received in the support section 12 of the base 1 and the support section 152 of the support element 15. And the permanent ring magnet 22 of the rotor 2 is located in a position relative to the windings 13 on the base 1. The IC control means 14 detects a change in the polarities of the permanent ring magnet 22 of the rotor 2 and sends a signal to alter the polarities of the magnetic fields created by the windings 13, thereby driving



Serial Number 09/964,640

the permanent ring magnet 22 to turn by repulsive forces. When the rotor 2 stops, the closest one of the strong magnetic areas 222 of the north and south poles of the permanent ring magnet 23 is attracted and thus retained in place by the magnetically attractive positioning member 17 on the base 1. Thus, the strong magnetic area 222 of each magnetic pole of the permanent ring magnet 23 is located away from a respective winding 13 on the base 1. Namely, the transition areas 221 of the permanent ring magnet 23 are not proximal to and thus do not face the IC control means 14. As a result, when the rotor 2 is to be restarted, the IC control means 14 will surely be able to detect the polarities of the permanent ring magnet 23 and thus reliably restart the motor easily.

**APPENDIX D**  
**(Marked-Up Copy Of Amended Paragraphs)**

Page 1, lines 15-21:

Fig. 10 of the drawings illustrates another conventional stator structure of a D.C. brushless motor structure disclosed in Taiwan Utility Model Application No. 81217854 published on Nov. 1, 1993 and entitled [MPROVED] IMPROVED STATOR YOKE FOR A STATOR OF A HEAT-DISSIPATING FAN MOTOR. Each of an upper stator yoke 8 and a lower stator yoke 8 comprises plural poles 81 on a peripheral edge thereof, each pole 81 having a notched portion 82 in a side thereof.

Page 1, lines 22-25:

The notched portions 92 and 82 in these conventional D.C. brushless motor structures are designed to create an uneven magnetic force associated with the permanent magnet, thereby preventing the rotor [to stop] from stopping in a dead corner for starting and thereby allowing the rotor to be restarted.

Page 2, lines 2-4:

An object of the present invention is to provide an easy-to-start structure of a D.C. brushless motor that prevents the rotor of the motor [to stop] from stopping in a dead corner for starting and that allows the rotor to be restarted easily.

Page 4, line 20 to Page 5, line 9:

As illustrated in Fig. 2, the base 1 has even-numbered windings 13 mounted to the outer wall thereof. The rotor 2 is received in the through-hole 11 of the base 1. Two ends of the shaft 21 of the rotor 2 are respectively, rotatably received in the support section 12 of the base 1 and the support section 152 of the support element 15. And the permanent ring magnet [23] 22 of the rotor 2 is located in a position relative to the windings 13 on the base 1. The IC control means 14 detects a change in the polarities of the permanent ring magnet [23] 22 of the rotor 2 and sends a signal to alter the polarities of the magnetic fields created by the windings 13,

Serial Number 09/964,640

thereby driving the permanent ring magnet [23] 22 to turn by repulsive forces. When the rotor 2 stops, the closest one of the strong magnetic areas 222 of the north and south poles of the permanent ring magnet 23 is attracted and thus retained in place by the magnetically attractive positioning member 17 on the base 1. Thus, the strong magnetic area 222 of each magnetic pole of the permanent ring magnet 23 is located away from a respective winding 13 on the base 1. Namely, the transition areas 221 of the permanent ring magnet 23 are not proximal to and thus do not face the IC control means 14. As a result, when the rotor 2 is to be restarted, the IC control means 14 will surely be able to detect the polarities of the permanent ring magnet 23 and thus reliably restart the motor easily.